

Reduction of MTT to purple formazan by vitamin E isomers in the absence of cells

ABSTRACT

The yellow tetrazolium salt 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide (MTT) is widely used to determine cell viability in cell proliferation and cytotoxic assays. MTT is reduced by metabolically active cells to form an insoluble purple formazan product that is quantifiable by spectrophotometry. It is the most common and direct assay for cell viability. However, in this present study, we demonstrated that the vitamin E isomers - - - - tocotrienols and -tocopherol were able to reduce MTT into a formazan product, despite the absence of living cells. For comparison, a second method for determining cell viability, which is the neutral red uptake assay, was used in parallel with the MTT assay. The results showed that neutral red did not interact with the vitamin E isomers. Our findings suggest that the MTT assay is not suitable for studying the proliferative effects of vitamin E isomers on cell growth.

Keyword: MTT; Neutral red uptake; Vitamin E isomers; Cell viability